UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,131	05/23/2001	Mikko Huttunen	P-277995	4288

909 7590 06/21/2004		EXAMINER	
PILLSBURY WINTHROP, LLP		WANG, TED M	
P.O. BOX 10500			
MCLEAN, VA 22102	ART UNIT	PAPER NUMBER	
	2634		

DATE MAILED: 06/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _23 May 2001_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-15_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,5-8,10-13 and 15_ is/are rejected.

7)☒ Claim(s) _4,9 and 14_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _23 May 2001_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413)
                                                        Paper No(s)/Mail Date. _____ .
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   5)☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date _7_.   6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-15 are pending in the application.

Drawings

2.   The drawings are objected to because the drawing should label all the elements

in the figures. For example, in Fig.2 20 and 22 should be labeled as data bits and 21

should be labeled as training sequence. A proposed drawing correction or corrected

drawings are required in reply to the Office action to avoid abandonment of the

application. The objection to the drawings will not be held in abeyance.

Preliminary Amendment

3.   The preliminary amendments (a) and (b) filed on 4/9/2001 and 9/5/2001 have

been entered respectively. Claims 1-10 are amended and claims 11-15 are added.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent
by another filed in the United States before the invention thereof by the applicant
for patent, or on an international application by another who has fulfilled the
requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before
the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act

of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior

to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5.   Claims 1, 6, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by

Keisala (US6,714,609).

- □ In regard claim 1, Keisala discloses a co-channel interference in a receiver for
  selecting a modulation detector in a receiver which includes at least a first and a
  second detector (Fig.2 and 3 and column 7 lines 1-25), the method comprising:
  determining at least one cross-correlation value between a stored training
  sequence and at least one training sequence of a received signal (Fig.1, 2, and
  3, and column 3 line 24 – column 5 line 34, and column 7 line 25 – column 8 line
  7); and selecting a detector used for detection of a signal to be received on the
  basis of the determined at least one cross-correlation value (Fig.2 and 3, and
  column 5 line 36 column 7 line 25, and column 7 line 25 – column 8 line 7).

- □ In regard claim 6, which is a receiver claim related to claim 1, all limitation is
  contained in claim 1. The explanation of all the limitation is already addressed in
  the above paragraph.

- □ In regard claim 11, which is a receiver claim related to claim 1, all limitation is
  contained in claim 1. The explanation of all the limitation is already addressed in
  the above paragraph

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

7.   Claim 2, 7, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable

over by Keisala (US6,714,609) in view of Dent et al. (US5,841,816).

□ In regard claim 2, Keisala discloses all of the limitation as described in the above

paragraph except specifically teaching searching for an ideal synchronization

point of the received signal, at which point the cross-correlation between the

training sequence of the received signal and the stored training sequence has a

maximum value; and calculating the cross-correlation value between the stored

training sequence and the training sequence of the received signal, which is

obtained by shifting a synchronization point of the received signal for one symbol

sequence at least one of forwards or backwards from the ideal synchronization

point.

Dent et al. discloses a diversity PI/4-DQPSK demodulation with searching for an

ideal synchronization point of the received signal, at which point the

cross-correlation between the training sequence of the received signal and the

stored training sequence has a maximum value (Fig.3 and column 11 line 11 –

column 12 line 67); and calculating the cross-correlation value between the
stored training sequence and the training sequence of the received signal, which
is obtained by shifting a synchronization point of the received signal for one
symbol sequence at least one of forwards or backwards from the ideal
synchronization point (Fig.3 and column 11 line 11 – column 12 line 67) in order
to provide additional quality measurements and to facilitate diversity combination
or selection.

It would have been obvious to one of ordinary skill in the art at the time of the
invention to modify Keisala's receiver in view of Dent's disclosure in order to
provide additional quality measurements and to facilitate diversity combination or
selection.

- In regard claim 7, which is a receiver claim related to claim 2, all limitation is
  contained in claim 2. The explanation of all the limitation is already addressed in
  the above paragraph.

- In regard claim 12, which is a receiver claim related to claim 2, all limitation is
  contained in claim 2. The explanation of all the limitation is already addressed in
  the above paragraph.

8.   Claim 3, 8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable
over by Keisala (US6,714,609) in view of Tajiri et al. (US5,946,359).

- In regard claim 3, Keisala discloses all of the limitation as described in the above
  paragraph except specifically teaching that the received signal is a complex

signal, whereby at least one cross-correlation value to be determined is a complex cross-correlation value.

Tajiri et al. discloses a parameter measuring apparatus for digital quadrature modulation signal that the received signal is a complex signal, whereby at least one cross-correlation value to be determined is a complex cross-correlation value (Fig.1, 8, and 12, and column 3 lines 30-67, and column 9 line 1 – column 10 line 46) in order to improve the demodulation result.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Keisala's receiver in view of Tajiri's disclosure in order to improve the demodulation result. .

❑   In regard claim 8, which is a receiver claim related to claim 3, all limitation is contained in claim 3. The explanation of all the limitation is already addressed in the above paragraph.

❑   In regard claim 13, which is a receiver claim related to claim 3, all limitation is contained in claim 3. The explanation of all the limitation is already addressed in the above paragraph.

9.   Claims 5, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Keisala (US6,714,609) in view of Koch (US5,199,047).

❑   In regard claim 5, Keisala discloses all of the limitation as described in the above paragraph except specifically teaching that the first detector includes a channel equalizer.

Koch discloses a receiver for a digital transmission system that the first detector includes a channel equalizer (Fig.1 and 3 element 25 and column 4 lines 21-46, and column 7 lines 59-66) in order to recover the received digital useful information signals transmitted by the transmitter from the sample values while utilizing the information of the actual channel characteristic.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Keisala's receiver in view of Koch's disclosure in order to recover the received digital useful information signals transmitted by the transmitter from the sample values while utilizing the information of the actual channel characteristic.

❑ In regard claim 10, which is a receiver claim related to claim 5, all limitation is contained in claim 5. The explanation of all the limitation is already addressed in the above paragraph.

❑ In regard claim 15, which is a receiver claim related to claim 5, all limitation is contained in claim 5. The explanation of all the limitation is already addressed in the above paragraph.

Allowable Subject Matter

10.   Claims 4, 9, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11.   Reference US6,026,130 is cited because they are put pertinent to the channel

estimating in a communication system. However, none of references teach detailed

connection as recited in claim.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ted M Wang whose telephone number is (703) 305-

0373. The examiner can normally be reached on 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for

the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 306-

0377.

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Ted M Wang
Examiner
Art Unit 2634

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Ted M. Wang

STEPHEN CHIN
SUPERVISORY PATENT EXAMINE¡
TECHNOLOGY CENTER 2600